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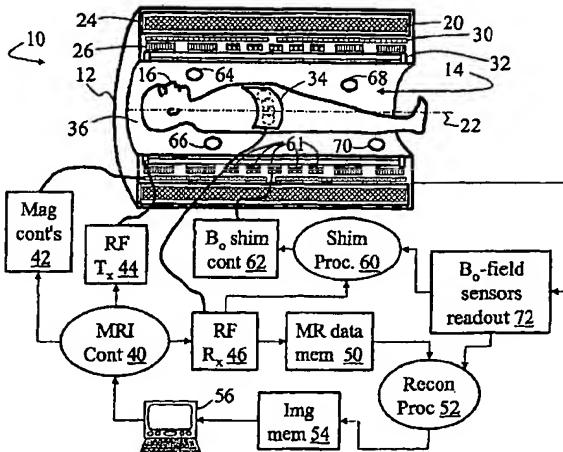
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**(54) Title: MAGNETIC RESONANCE IMAGING WITH REAL-TIME MAGNETIC FIELD MAPPING**



(57) **Abstract:** A magnetic resonance imaging scanner (10) performs magnetic resonance imaging. The scanner (10) includes a main magnet (20) generating a main magnetic field, magnetic field gradient coils (30), and at least one radio frequency antenna (32, 34). At least one magnetic field sensor (32, 34, 64, 66, 68, 70, 72) measures spatial data corresponding to the main magnetic field. A processor (60) processes the measured spatial data corresponding to the main magnetic field to determine at least one main magnetic field nonuniformity parameter. The at least one magnetic field sensor (32, 34, 64, 66, 68, 70, 72) and the processor (60) operate concurrently with the magnetic resonance imaging.



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